

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Docket No: Q68338

Keizo AKUTAGAWA, et al.

Appln. No.: 10/069,588

Group Art Unit: 3616

Confirmation No.: 3867

Examiner: Eric D. Culbreth

Filed: February 27, 2002

For: VEHICLE CONTROL METHOD AND VEHICLE CONTROL APPARATUS

DECLARATION UNDER 37 C.F.R. § 1.132

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

I, Keizo Akutagawa, hereby declare and state:

THAT I am a citizen of Japan;

THAT I have received the degree of Doctor in
Department of technology from University of London;

THAT I have been employed by Bridgestone corporation since
April 1, 1988;

I am one of the inventors of the subject matter of the above Application. I have reviewed the Office Actions in the above case. The Examiner contends that the claim recitation "the first and second vibrations are micro-vibrations having a higher frequency than a response frequency of change in a behavior of the vehicle" is indefinite because it is unclear what constitutes the "response frequency." However in my professional opinion, one skilled in the art, such as

myself, would understand the claimed relationship between the frequency of the micro-vibration and the response frequency of change in behavior of the vehicle. Herewith, "the response frequency of change in behavior of the vehicle" is the frequency that the vehicle body can follow up the motion with when control is established by means of a hydraulic or pneumatic control such as ABS control or driving and braking control and such a definition is well known in the art.

Further, as can be drawn from the description in last paragraph of page 2 of the specification under "Background of the Invention," for example, when the attitude control of the vehicle body is performed based on the yaw rate sensor, it is a well known fact that the vehicle body will be delayed in response due to its large mass and thus the control action can bring the control of the vehicle into an unstable state. Accordingly, it is very obvious for a skilled person that "the response frequency of change in behavior of a vehicle" is the frequency that is available for vehicle control, namely, that which can be exhibited by the vehicle body, and also that this is the frequency exhibiting almost no delay in follow up by the vehicle body when turning, applying the brakes or driving the vehicle, or through controlling the ABS and brake system, or controlling the engine and the torque, for example. The response frequency of change in vehicle depends on the mass and speed of the vehicle and generally width of the frequency change is said to be in the range of 0.1 - 2 Hz.

Also, in order to secure stabilized performance of a running vehicle with respect to an input from a road surface, it is necessary and natural that the frequency band of the "response frequency of change in behavior of the vehicle," be lower than the inherent resonant frequency of the vehicle body above the springs of a mechanical suspension, and the above fact is well known in the art.

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Yet further, the inherent frequency of the vehicle body is established by the factors inherent to the vehicle body and the suspension mechanism such as mass of the vehicle body and spring constant and attenuation coefficient of the suspension mechanism. Thus, "the response frequency of change in behavior of the vehicle" of the present invention is quite different from "the inherent resonant frequency of the vehicle body."

I also submit that the attached copies of pages from reference book: John C. Dixon, "Tires, Suspension and Handling", 2nd ed., Society of Automotive Engineers, Inc., Warrendale, Pa. to indicate that one of ordinary skill in the art would understand the definite meaning of "response frequency," as used in the claims.

I submit that one skilled in the art, such as myself, would understand that the claimed micro-vibration has the frequency higher than the "response frequency of change in behavior of the vehicle," and further would understand the relationship between the claimed micro-vibration and the response frequency of change in behavior of the vehicle.

I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: December 4, 2006

